National Institute of Environmental Health Sciences

The effect of pre-existing medical conditions on heat stroke during hot weather in South Korea

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Abstract:

Background: Heat stroke contributes considerably to morbidity and mortality in hot weather, but it is unclear whether pre-existing medical conditions increase the risk of heat stroke. The purpose of this study was to assess the association between heat stroke and pre-existing medical conditions in South Korea. Methods: A case-control study was conducted using data from a nationwide surveillance system for heat illnesses in 2012. Individuals with heat stroke were identified and compared to control subjects with mild heat illness such as heat exhaustion, heat edema, heat cramps, and heat syncope. Categories of pre-existing medical conditions included cardio/cerebrovascular disease, respiratory disease, neuropsychiatric disorder, and diabetes mellitus. Associations between heat stroke and pre-existing medical conditions were assessed by multivariate logistic regression analyses. Results: Of 968 eligible patients, 178 (18.4%) presented with heat stroke. Patients with pre-existing medical conditions were relatively greater in the heat stroke group than in the control group (40.4% and 23.9%, respectively). Neuropsychiatric disorder was associated with an increased odds of heat stroke after adjustment for covariates (adjusted odds ratio, 7.69; 95% CI, 4.06-14.54). There were no significant relationships between heat stroke and other medical conditions (cardio/cerebrovascular disease: 0.66, 0.40-1.06; respiratory disease: 1.44, 0.35-5.89; diabetes mellitus: 1.16, 0.58-2.34). Conclusions: Pre-existing neuropsychiatric disorder was associated with an increased risk of heat stroke. National strategies and clinical guidance for such patients should be initiated to prevent fatal events.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: South Korea

Health Impact:

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat stroke; heat related illness

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Other Vulnerable Population: people with cardiovascular disease; people with cerebrovascular disease; people with respiratory disease; people with neuropsychiatric disorder; people with diabetes

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified